

CASE STUDY: WIRRAL - NEW BRIGHTON

OVERVIEW

On the 5th December 2013 a combination of wind, atmospheric pressure and high tides caused widespread coastal flooding across much of the UK. Wirral experienced its worst flooding since the early nineties with the townships of New Brighton and West Kirby particularly affected.

At New Brighton, flooding caused major disruption. The Fort Perch Rock car park was inundated with tidal waters from overtopping, the floodwaters reaching inland as far as Marine Promenade and Marine Point. The new leisure and retail development at New Brighton also suffered inundation with almost all the commercial properties experiencing flooding.

At the storms peak, the crest of the inshore waves were at the same level as the crest of Kings Parade sea wall causing green water (sea spray/foam) to overtop. This, however, was exacerbated by waves reflecting vertically on impact with the sea wall and the resulting spray being blown inland by the prevailing 70mph winds.



CATCHMENT

New Brighton is a seaside town on the northeast corner of the Wirral Peninsula. Large areas of the town are residential in nature with a population of approximately 14,859, with the seafront area given over to mainly retail and leisure industries.

The town is founded primarily on a solid geology of Keuper Sandstone and Bunter Pebble beds and is confined by the Irish Sea to the north and the Mersey Estuary to the east and sits on a rocky outcrop. The waterfront areas are flat plains of land reclaimed after the construction of the Kings Parade sea wall in 1930.

Tidal inundation has affected the area numerous times in the past with the most notable incident prior to December 2013 being February 1990. This incident resulted in widespread damage, including the destruction of the open-air swimming pool on Kings Parade.

FLOOD INCIDENT

Flooding affected the New Brighton sea front area from Harrison Drive in the west to Victoria Road in the east, specifically Kings Parade, Ian Fraser Walk, Marine Promenade and Tollemache Street.

Fort Perch Rock car park was inundated. The Marine Point retail and leisure development and residential properties were significantly affected, with internal flooding occurring at the majority of locations.



CAUSE

The flooding on the 5th December 2013 was caused by a combination of high spring tides, severe gales and a sustained period of low pressure culminating in a tidal surge of 1.2 metres.

The predicted tide height for 5th December was 9.9m (Above Chart Datum). Wind speeds on the day reached Force 8 (39-46 mph), gusting to Force 10 (55-63 mph), blowing in a westerly direction. Conditions leading up to the day had caused a low-pressure induced surge that resulted in the already high tides being increased by 1.2m.

Fort Perch Rock car park, Marine Promenade and Tollemache Street were affected by green water inundation due to the high tide levels. Kings Parade, Ian Fraser Walk and the Marine Point development were also affected by overtopping due to tide levels but this was exacerbated by waves reflecting vertically at Kings Parade sea wall and the resulting spray blowing inland due to the direction of the storm force winds.

IMPACTS

ENVIRONMENT

- Litter & marine debris deposited inland.
- Green recreation areas flooded.

ECONOMY

- Infrastructure repairs: IRO £40,000
- Cleansing operation: IRO £9,000
- Cost to business/residents: Unknown

PEOPLE

- Travel disruptions before and after high water.
- Disruption to businesses during and after the event.
- Internal & external flooding of commercial and residential premises.
- Premises uninhabitable whilst cleansing and repairs carried out.
- Financial outlay for repair work.
- Impact on insurance premiums.
- Health impacts caused by stress of uninhabitable residences.

RESPONSE

As a Lead Local Flood Authority (LLFA), Wirral Council has a role in overseeing the management of local flood risk.

Wirral Council was aware of the conditions that were to cause the widespread tidal flooding, as a result of the guidance received from the Flood Forecasting Centre and from their own internal monitoring of tide levels and meteorological conditions.

Wirral Council advised the Highway Authority of the likelihood of flooding so that road closures could be implemented.

The Environment Agency co-ordinated the Merseyside Local Resilience Forum on the day prior to the flood event and issued Flood Alerts for the Irish Sea and Dee Estuary and also the Mersey Estuary on the afternoon of the 4th December. The Mersey Estuary Flood Alert was subsequently upgraded to a Flood Warning that evening.

The Environment Agency monitored flooding during the event, providing an initial list of affected properties for further investigation and also assisted during the early stages of investigation with survey work on flood outlines and also determining flood depths.

After the flood event, Wirral Council followed up on information provided by the Environment Agency and conducted a full investigation to determine the extent and location of flooding.

For this event the government, through the Department for Communities and Local Government have implemented various Flood Support Schemes to assist those affected with the costs of recovery. Wirral Council is administering four of the schemes to benefit affected householders and businesses.

Wirral Council has a duty to maintain the highway under Section 41 of the Highway Act 1980. The Variable Messaging System at New Brighton was activated and a diversionary route was implemented. Floodwater drained away through the existing highway and public drainage systems once the tide had receded; only a small number of road gullies required follow up cleansing to remove debris.

After the tide had receded, Wirral Council arranged for removal of tide-borne debris from highways and promenades. Roads remained closed until they were assessed as safe for vehicles.



FUTURE RISK MANAGEMENT

Following the flooding, grants were made available to the owners of properties and businesses affected in order to carry out property level protection. The management company for the Marine Point development purchased temporary barriers for deployment as and when similar incidents occur. The Highways Department of Wirral Council installed road barriers and variable messaging signs for the closure of affected roads and traffic management.

SOURCE

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